REMARKS

In the November 3, 2004 Office Action, all of the claims 1-28 stand rejected in view of prior art. No other objections or rejections were made in the Office Action.

Status of Claims and Amendments

In response to the November 3, 2004 Office Action, Applicant has amended independent claims 1, 19 and 20 as indicated above. Moreover, Applicant has amended claim 3 to rewrite this claim in independent form and also to correct typographical errors in this claim. Thus, claims 1-28 are pending, with claims 1, 3, 19 and 20 being the only independent claims. Reexamination and reconsideration of the pending claims are respectfully requested in view of above amendments and the following comments.

Entry of August 6, 2004 Amendment

In paragraph 1 of the Office Action, the Office Action indicates that Applicant's August 6, 2004 Response has been entered.

Restriction Requirement

The paragraph 1 of the Office Action indicates the restriction requirement issued on March 25, 2004 was withdrawn. Thus, all of the claims 1-28 have been examined on merits in the Office Action.

Applicant wishes to thank the Examiner for the withdrawal of the restriction requirement and thorough examination of the present application.

Rejections - 35 U.S.C. § 103

In paragraphs 2-3 of the Office Action, claims 1-28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,615,933 to Kidston et al. (hereinafter "Kidston et al. patent") in view of U.S. Patent No. 5,399,000 to Aoki et al. (hereinafter "Aoki et al. patent") or U.S. Patent No. 5,318,355 to Asanuma et al. (hereinafter "Asanuma et al.

patent"). In response, Applicant has amended independent claims 1, 19 and 20 as mentioned above. Moreover, Applicant respectfully disagrees with the assertion of the Office Action in that the limitation recited in claim 3 is obvious over the prior art of record. Thus, Applicant has amended claim 3 to rewrite this claim in independent form.

Independent Claim 1, 19 and 20

Independent claims 1, 19 and 20, have been amended to recite a device or method that includes:

(1) a plurality of braking modes with each of the braking modes having a ***different braking control priority with a different sequence*** for setting a target regenerative braking force, a target hydraulic braking force and a target electric braking force;
(2) determining a required braking force for an entire vehicle; and
(3) setting the target regenerative braking force, the target hydraulic braking force, and the target electric braking force ***based on the braking control priority*** of ***the selected braking mode*** to produce the required braking force for the entire vehicle.

Clearly this arrangement is ***not*** disclosed or suggested by the Kidston et al. patent, the Aoki et al. patent, the Asanuma et al. patent or any other prior art of record.

In the Kidston et al. patent, the front wheels are provided with a regenerative brake 18 and a pair of hydraulic friction brake 36 and 38 and the rear wheels are provided with a pair of electric friction brakes 48 and 50. Basically, the friction brake torque of the Kidston patent is a value obtained by subtracting the regenerative brake torque from the total requested brake torque (for four wheels) as seen in Figure 9. When the regenerative brake is applied, the regenerative braking amount is determined based on the total requested brake torque (for four wheels) (column 6, lines 15-30). The regenerative braking amount is limited by the regenerative torque limit at that point in time. Moreover, the hydraulic and electric braking

torques are obtained by apportioning a value (friction brake torque) that is obtained by subtracting the regenerative brake torque from the total requested brake torque (for four wheels) such that the electric brake torque for the rear wheels is calculated based on the hydraulic brake torque of the front wheels to achieve the ideal braking distribution ratio for the front to rear wheels that is well known in the prior art (column 6, lines 45-51).

The Kidston et al. patent discloses ***only one braking control priority with same sequence*** for setting a target regenerative braking force, a target hydraulic braking force and a target electric braking force, i.e., an electric power maintenance priority mode, as seen in Figure 7. While different braking forces may be assigned to the different brakes in the Kidston et al. patent, ***only one braking control priority with same sequence for setting each braking force is used***. In other words, the Kidston patent ***fails*** to disclose or suggest a plurality of barking modes having a different braking control priority ***with a different sequence*** for setting each target braking force as now recited in independent claims 1, 19 and 20.

Moreover, the Aoki et al. patent and the Asanuma et al. patent fail to provide for the deficiency of the Kidston et al. patent. Both of the Aoki et al. patent and the Asanuma et al. patent basically disclose a brake system in electric vehicle in which the blend of the regenerative braking force and the hydraulic braking force are adjusted depending on three different braking modes. However, in the Aoki et al. patent or the Asanuma et al. patent, the sequence for setting the regenerative braking force and the hydraulic braking force is same in the three braking modes. More specifically, as seen in the flowcharts of Figures 14-16 of the Aoki et al. patent (also please see Figures 14-16 of the Asanuma et al. patent), the regenerative braking force is first determined in all of the three braking modes (e.g., in step S551 in Figure 14 (Mode 3), step S561 in Figure 15 (Mode 2) and step S571 in Figure 16

(Mode 1)). Then, the hydraulic braking force is determined after the regenerative braking force is determined. While different braking forces may be assigned to the different brakes (i.e., regenerative or hydraulic) in the Aoki et al. patent or the Asanuma et al. patent, ***only one braking control priority with same sequence for setting each braking force is used.*** In other words, the Aoki et al. patent and the Asanuma et al. patent ***fail*** to disclose or suggest a plurality of barking modes having a different braking control priority ***with a different sequence*** for setting a target regenerative braking force, a target hydraulic braking force and a target electric braking force as now recited in independent claims 1, 19 and 20.

It is well settled in U.S. patent law that the mere fact that the prior art can be modified does ***not*** make the modification obvious, unless the prior art ***suggests*** the desirability of the modification. Accordingly, the prior art of record lacks any suggestion or expectation of success for combining the patents to create the Applicant's unique arrangement of the vehicle braking control system as recited in independent claims 1, 19 and 20.

Moreover, Applicant believes that the dependent claims 2, 13-18, and 27-28 are also allowable over the prior art of record in that they depend from independent claim 1, and therefore are allowable for the reasons stated above. Also, dependent claims 2, 13-18, and 27-28 are further allowable because they include additional limitations. Thus, Applicant believes that since the prior art of record does not disclose or suggest the invention as set forth in independent claim 1, the prior art of record also fails to disclose or suggest the inventions as set forth in dependent claims 2, 13-18, and 27-28.

Therefore, Applicant respectfully requests that the rejection as it is applied to independent claims 1, 19 and 20 and dependent claims 2, 13-18, and 27-28 be withdrawn in view of the above comments and amendments.

Independent Claim 3

Regarding independent claim 3, Applicant believes the Kidston et al. patent, Aoki et al. patent, and the Asanuma et al. patent, whether taken singularly or in combination, fail to disclose or suggest the unique arrangement of the vehicle braking control system as recited in claim 3.

Claim 3 requires a ***specific sequence*** for setting a target regenerative braking force, a target hydraulic braking force, and a target electric braking force when an electric power maintenance priority mode is selected as the braking mode. More specifically, when the electric power maintenance priority mode is selected in the vehicle braking control system according to claim 3, first the target regenerative braking force is set, second the target hydraulic braking force is set, and third the target electric braking force is set based on the previously set target regenerative braking force and target hydraulic braking force.

The Kidston et al. patent discloses an electric power maintenance priority mode. However, in the Kidston et al. patent, after the regenerative brake torque is determined, the hydraulic and electric braking torques are obtained by apportioning a value (friction brake torque) that is obtained by subtracting the regenerative brake torque from the total requested brake torque (for four wheels) such that the electric brake torque for the rear wheels is calculated based on the hydraulic brake torque of the front wheels to achieve the ideal braking distribution ratio for the front to rear wheels (column 6, lines 45-51). In other words, in the Kidston et al. patent, the electric brake torque (step 204 in Figure 5) is determined ***before*** the hydraulic brake torque (step 206 in Figure 5) is determined. Thus, the Kidston et al. patent ***fails*** to disclose or suggest the specific sequence for setting the target braking forces for the regenerative, hydraulic and electric brakes as recited in claim 3.

Moreover, since the Aoki et al. patent and the Asanuma et al. patent disclose the braking system that utilizes only the regenerative brake and the hydraulic brake, the Aoki et al. patent and the Asanuma et al. patent ***fail*** to disclose or suggest the specific sequence for setting the target braking forces for the regenerative, hydraulic and electric brakes as recited in claim 3.

As mentioned above, the mere fact that the prior art can be modified does ***not*** make the modification obvious, unless the prior art ***suggests*** the desirability of the modification. Accordingly, the prior art of record lacks any suggestion or expectation of success for combining the patents to create the Applicant's unique arrangement of the vehicle braking control system as recited in claim 3.

Moreover, Applicant believes that the dependent claims 4-12 and 21-26 are also allowable over the prior art of record in that they depend from independent claim 3, and therefore are allowable for the reasons stated above. Also, dependent claims 4-12 and 21-26 are further allowable because they include additional limitations. Thus, Applicant believes that since the prior art of record does not disclose or suggest the invention as set forth in independent claim 3, the prior art of record also fails to disclose or suggest the inventions as set forth in dependent claims 4-12 and 21-26.

Therefore, Applicant respectfully requests that the rejection as it is applied to claim 3 and dependent claims 4-12 and 21-26 be withdrawn in view of the above comments and amendments.

Prior Art Citation

In the Office Action, additional prior art references were made of record. Applicant believes that these references do not render the claimed invention obvious.

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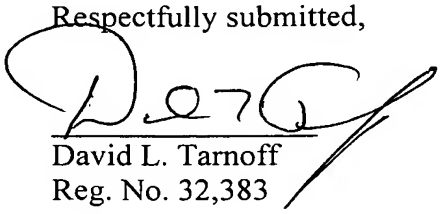
In view of the foregoing amendment and comments, Applicant respectfully asserts that claims 1-28 are now in condition for allowance. Reexamination and reconsideration of the pending claims are respectfully requested.

Respectfully submitted,



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